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Board Characteristics and Financial Performance of Listed Insurance Companies in Nigeria

Timothy Aondona Aondover[1], Kayode Oluwafemi Ishola[2]
[1]*Department of Accounting, Ignatius Ajuru University of Education, Rumuolumenu, Port Harcourt*
[2]*Caleb University, Ladoke Akintola University of Technology Department of Management Accounting*

Abstract: *This study examined the impact of board characteristics on the financial performance of listed insurance companies in Nigeria. Specifically, it investigated the effect of board size and board gender diversity on Net Profit Margin (NPM) and Return on Assets (ROA). The study was anchored on Agency Theory and adopted an ex-post facto research design. Secondary data were obtained from the audited annual reports of 16 insurance companies listed on the Nigerian Exchange Group (NGX) over the period 2015–2024. Data were analysed using descriptive statistics, Pearson correlation, and panel regression techniques, with company size and company age included as control variables. The findings revealed that board size had no significant effect on Net Profit Margin but exerted a significant positive effect on Return on Assets, indicating that an optimal board size enhances asset utilization and overall firm performance. In contrast, board gender diversity had no significant effect on either Net Profit Margin or Return on Assets. The study concluded that board size is a critical corporate governance mechanism for improving the financial performance of listed insurance companies in Nigeria, whereas board gender diversity has not yet translated into measurable profitability gains. The study recommends that insurance companies maintain an optimal board size that promotes effective monitoring, strategic decision-making, and accountability. It also recommends that regulatory authorities strengthen corporate governance practices by ensuring merit-based board appointments capable of enhancing firm performance.*

Keywords
Board characteristics; board size; board gender diversity; financial performance; net profit margin; return on assets; listed insurance companies; Nigeria.

I. Introduction

Persistent low financial performance, particularly in terms of profitability, remains a global concern across industries, with insurance companies being especially vulnerable due to market rigidity and heightened competition. Evidence from international studies indicates that even mature markets face profitability pressures, undermining shareholder value and limiting reinvestment capacity (Di Biase & Onorato, 2021). In Africa, similar trends are evident as firms struggle with thin margins, regulatory constraints, and macroeconomic instability, leading to weaker returns on assets (Andoh, et al., 2023). In Nigeria, insurance companies continue to face acute profitability challenges linked to margin volatility, regulatory pricing frameworks, foreign exchange exposure, and supply chain disruptions that erode competitiveness (Audu, et al., 2022). These factors directly affect return on assets (ROA), which serves as a critical indicator of efficiency in asset deployment to generate earnings (Donald, 2024). Fluctuations in ROA diminish investor confidence, restrict capital accumulation, and threaten sectoral growth prospects in a market already characterized by under-penetration and consumer distrust (Titilayo et al., 2022). Overall, the persistence of low profitability highlights the need for structural interventions. Within this context, governance mechanisms, especially board characteristics, emerge as strategic levers to enhance financial performance and restore sustainable shareholder value (Aondover, 2025).

Governance serves as a critical lever for enhancing financial performance in high-risk, regulation-heavy industries such as insurance, where strategic oversight and monitoring mechanisms directly influence profitability outcomes. Effective boards reduce agency costs by

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ensuring management decisions align with shareholder interests, while also facilitating access to resources and legitimacy in volatile markets (Asmar et al., 2024). Board oversight shapes cash flows by guiding investment, dividend, and risk management policies, while disciplined monitoring lowers operational inefficiencies and reduces costs associated with misallocation of resources (Magoma et al., 2024). In addition, boards mediate regulatory compliance and stakeholder demands, helping firms navigate complex pricing structures and volatile foreign exchange exposures that otherwise erode margins (Sunny & Hoque, 2025). Strong governance also mitigates risks of earnings manipulation and weak disclosure practices, thereby improving the credibility of reported profitability indicators such as return on assets (Puhat et al., 2024).

In developing economies like Nigeria, where institutional voids and limited investor confidence exacerbate financial vulnerabilities, the role of governance becomes even more central to sustaining firm value (Ilo et al., 2025). Within this framework, board characteristics represent the focal governance dimension through which financial performance can be most effectively explained (Aondover, 2025).

Board characteristics embody the structural and demographic attributes of corporate boards that shape decision-making quality, monitoring effectiveness, and stakeholder confidence in firms. Key dimensions such as board size, independence, gender diversity, and meeting frequency influence the ability of directors to provide strategic oversight and safeguard shareholder wealth (Magoma et al., 2024). An optimally sized board balances diverse perspectives with effective coordination, thereby enhancing decision quality, while excessive board size may create free-riding and slow responses in competitive markets (Asmar et al., 2024). Independent directors improve monitoring credibility by reducing managerial entrenchment and protecting profitability measures like return on assets, particularly in settings where ownership concentration weakens accountability (Puhat et al., 2024). Gender diversity contributes not only to representational fairness but also to cognitive variety, which strengthens oversight, risk assessment, and reputation among investors, though its performance effects remain contested (Sunny & Hoque, 2025). Board meeting frequency further reflects commitment to diligent oversight, with regular meetings linked to better control of operational inefficiencies and external shocks (Ilo, et al., 2025). Together, these dimensions highlight the centrality of board characteristics in shaping profitability, highlighting the need to integrate board size, composition, gender, and meeting frequency into theoretical performance channels.

Board characteristics shape profitability by influencing strategic oversight, decision quality, and resource allocation within listed insurance companies in Nigeria. Board size, when optimally balanced, promotes diversity of perspectives and monitoring intensity, but excessively large boards may slow responses and create coordination inefficiencies, potentially reducing return on assets. Gender diversity extends cognitive breadth and improves monitoring capacity, although tokenistic representation without critical mass risks limiting its influence on profitability outcomes (Sunny & Hoque, 2025). The composition of the board, especially the balance between executive and independent directors, influences whether independence strengthens oversight or if managerial entrenchment undermines its efficacy; involvement in strategic committees further influences the effect on financial performance. (Puhat et al., 2024). Meeting frequency signals diligence in oversight, enabling proactive responses to volatility in margins, foreign exchange exposures, and competitive pressures, though excessive meetings may generate procedural costs (Ilo et al., 2025). Anticipated performance effects are thus context-dependent: moderate board size, and meaningful gender diversity, as the variable scope of this study are expected to strengthen profitability through improved monitoring and risk management. These interconnections highlight the need for systematic evaluation, positioning this study on board characteristics and financial performance of listed insurance companies in Nigeria.

Objectives of the Study

The aim of this study is to examine the impact of board characteristics on the financial performance of listed insurance companies in Nigeria. Other specific objectives are:

1. To evaluate the effect of board size on the net profit margin (NPM) of listed insurance companies in Nigeria.
2. To examine the effect of board size on the return on assets (ROA) of listed insurance companies in Nigeria.
3. To investigate the effect of board gender on the net profit margin (NPM) of listed insurance companies in Nigeria.
4. To determine the impact of board gender on the return on assets (ROA) of listed insurance companies in Nigeria.

Research Hypotheses

Based on the specific research objectives, and questions, the following null hypotheses (H0) are formulated:

H01: Board size has no significant effect on the net profit margin (NPM) of listed insurance companies in Nigeria.

H02: Board size has no significant effect on the return on assets (ROA) of listed insurance companies in Nigeria.

H03: Board gender has no significant effect on the net profit margin (NPM) of listed insurance companies in Nigeria.

H04: Board gender has no significant effect on the return on assets (ROA) of listed insurance companies in Nigeria.

II. Review of Literature

2.1 Empirical Review

Sunny and Hoque (2025) investigated the moderating role of nomination and remuneration committees (NRCs) on the relationship between board characteristics and financial performance in Bangladesh's textile sector, employing regression analysis across 270 firm-year observations from 2016 to 2021. Grounded in agency, resource-dependence, and stakeholder theories, the study revealed that the presence of NRCs enhances the positive performance effects of larger board size and frequent meetings but intensifies the negative impact of excessive independent directors lacking firm-specific expertise; strikingly, female board representation was negatively associated with performance. Methodologically, the study stands out for exploring committee-level governance as a moderator, an advancement over studies focused only on base board traits. Though the textile industry differs from insurance, the findings highlight that governance committees play a critical role in mediating how board structure translates into performance outcomes. For Nigeria's insurance sector, this suggests that institutional frameworks like NRCs may shape whether board size or composition yields benefits or harms performance. Incorporating such governance layers into empirical models could yield richer, more actionable insights. Limitations include sector and country specificity and perhaps female representation findings that may reflect selection quality rather than diversity per se.

Ajayi et al. (2025) investigated the impact of board independence and gender diversity on the financial performance of listed insurance firms in Nigeria, using agency theory as its theoretical framework. Employing an ex-post facto design, the study analyses panel data from 2013 to 2023, sourced from audited financial statements of firms listed on the Nigerian Exchange Group. Financial performance is measured by net profit margin (NPM), with board independence (number of independent non-executive directors) and board gender diversity (number of female directors) as explanatory variables. Panel regression analysis reveals that board independence has a positive and statistically significant effect on NPM ($p < 0.01$), underscoring the importance of independent oversight in enhancing firm profitability.

Conversely, board gender diversity shows a negative but statistically insignificant relationship with NPM ($p > 0.05$), suggesting that female representation has not yet yielded measurable financial benefits in this context, potentially due to cultural barriers and tokenism. The model explains only 5.2% of the variation in profitability, indicating that other factors significantly influence financial outcomes. The study concludes that strengthening the functional autonomy of independent directors is critical for improving financial performance, while targeted interventions are needed to enhance the influence of female directors. Recommendations include stricter enforcement of governance codes to ensure true independence, alongside leadership development programs to empower female directors for meaningful participation in board decision-making.

Ogwang et al. (2025) investigated the effect of board diversity on the financial performance of insurance companies in Kenya. The stakeholders' theory, was used in supporting this study. This research study adopted the descriptive research design. The stratified random sampling technique was employed in determining the sample size for this study, thus resulting into having a sample size of 211 employees. The primary data for this study was collected using questionnaires whereas the secondary data was collected using data observation schedules/collection sheets. The p values of .001from the regression model which was less than 0.05, confirmed that board diversity has a significant positive effect on the financial performance of insurance companies in Kenya. The research therefore recommends that the insurance companies in Kenya should embrace board diversity, because it has a positive significant effect on their financial performance (Aondover, 2025).

Balarabe et al. (2025) investigated the relationship between board characteristics and the financial performance of nonfinancial firms listed on the Nigerian Exchange Group between 2013 and 2023. Using a panel data design, secondary data were extracted from 111 listed firms' annual reports, with 76 meeting the inclusion criteria. The study examines how board independence, board size, gender diversity, and board meeting frequency affect firm performance, measured by return on assets (ROA), earnings per share (EPS), and market capitalization (MKCP). Employing fixed and random effects regression models, the findings reveal that board size has a significant negative effect on ROA, suggesting that excessively large boards may hinder performance. Conversely, gender diversity exhibits a positive but insignificant relationship with financial performance, indicating the potential value of inclusivity in corporate governance. Board independence and meeting frequency show no significant effects on firm performance, reflecting structural and contextual limitations within Nigerian corporate governance practices. Control variables such as firm size and leverage significantly influence firm performance, whereas firm age does not. The study concludes that board structure remains a critical determinant of firm outcomes in developing economies, emphasizing the need for tailored governance frameworks that reflect Nigeria's institutional realities. Policymakers and regulators are urged to strengthen board composition standards to enhance accountability and optimize corporate value creation.

Adeola et al. (2025) examined the effect of corporate governance attributes on investment decision of listed insurance firms in Nigeria. Specifically, the study examined the effect of managerial ownership, institutional ownership, independent non-executive directors, board size, board gender diversity and board member financial expertise on investment decision of listed insurance firms in Nigeria. This study adopted ex-post facto research design. The population of the study comprised 22 insurance firms listed on Nigeria Exchange Group (NGX) as at 31st December, 2021. The data for the study were collected from secondary sources through annual reports for the period of 11 years from 2011 to 2021. The data collected were analyse using panel regression technique with the aid of STATA 15. After carrying out Hausman test between fixed effect model and random effect model, fixed effect model was used to test the hypotheses of the study. The findings revealed that managerial ownership and institutional ownership have insignificant negative effect on investment decision. In addition, the result revealed that independent non-executive directors, board size and board member financial expertise have significant positive effect on investment decision. Finally, the result revealed that board gender diversity has insignificant positive effect investment decision. The study concludes that board size, independent non-executive directors and board member financial expertise have significant positive effect on investment decision of listed insurance firms in Nigeria and Therefore, it is recommended that FRC Nigeria should increase board size, independent non-executive directors and board member financial expertise through the Nigeria code of corporate governance(NCCG) of listed insurance firms in Nigeria as these corporate governance attributes are very important in contributing to investment decision (Aondover, 2025).

Naburgi et al. (2025) examined the impact of firm-specific attributes firm size, leverage, and profitability on earnings management among listed insurance companies in Nigeria. Adopting a longitudinal research design, the analysis spans a 10-year period (2014–2023) and utilizes panel data regression techniques. Earnings management is measured using discretionary accruals estimated through the Jones Model, while firm size, leverage, and profitability are represented by the natural logarithm of total assets, the debt-to-assets ratio, and return on assets (ROA), respectively. Findings reveal that firm size and profitability have a significant negative effect on earnings management, while leverage does not exhibit a statistically significant influence. Based on these results, the study recommends that the National Insurance Commission (NAICOM) enhance its monitoring of highly leveraged firms to ensure compliance with solvency requirements and mitigate earnings manipulation risks. Additionally, regulators should promote transparency in financial reporting, particularly for firms facing declining profitability, through stricter disclosure policies and enforcement measures.

Poloola (2025) investigated board attributes and financial performance of listed consumer goods companies in Nigeria. The specific objectives are to ascertain the effect of foreign ownership, board size, board meeting, board gender diversity on financial performance (proxied by Return on Equity .The study covered a period of ten (10) years (2014 to 2023). A multiple regression estimation approach was employed on information extracted from a sample consisting of sixteen (16) consumer goods companies listed on the Nigerian Exchange Group between the years 2014 to 2023. Panel Least Square regression technique was employed in estimating the data and testing the formulated hypotheses. The study reveals the existence of significant effect of foreign ownership, board size gender diversity on financial performance of listed consumer goods companies in Nigeria. The study also discovered that board meeting, has no significant effect on financial performance of listed consumer goods companies in Nigeria. In line with the findings, the study recommended that management of consumer goods companies in Nigeria should consider the reduction of number of meeting held in a year, doing this will help consumer goods companies to save cost which will in turn enhance financial performance of the sector. The study also recommended that the idea of given more room to foreign investors should be discouraged, instead indigenous investors should be encouraged to own large portion of shares in our listed consumer goods companies, this is because the presence of more foreign investors will amount to expropriation of the firm values.

Aondover (2025) examined the Impact of Auditor Independence on Audit Quality of Listed Insurance Companies in Nigeria. In recent times, Nigeria has battled towards breaking loose from the recent excruciating economic recession; the need to maintain investors’ confidence in the capital market through high-quality audit and transparent financial reporting is unequivocally paramount. Within this context, the study examines the impact of auditor independence on audit quality of listed insurance companies in Nigeria. The study espoused on Auditors’ Theory of Inspired Confidence, as a theoretical background to develop an empirical framework to examined auditor independence and audit quality of listed insurance companies in Nigeria. Ex-post facto research design was adopted as well as the existing financial statement of listed insurance companies in Nigeria using secondary data. The population of this study comprised of all the 26 insurance companies listed in the Nigerian Stock Exchange (NSE) at 31st December, 2020 while 10 listed insurance companies constitute the sample size of the study. Spearman correlation coefficient was used in other to determine the relationship between audit quality and audit independence. Based on the findings, the study discovered that audit fee has significant impact on audit quality of listed insurance companies in Nigeria. Audit tenure has no significant impact on audit quality of listed insurance companies in Nigeria and audit rotation has significant impact on audit quality of listed insurance companies in Nigeria. The study concludes that audit quality was found to be significantly related to audit fee with a positive relationship. The positive relationship implies that the quality of audit dependent on the audit fee. The higher the audit fee, the higher qualitative and reliable the audit work will be. The study recommends that government through the various professional bodies should develop robust policies that will help improve audit quality in Nigeria through effective audit rotation so as to avoid familiarity.

Naburgi et al. (2025) examined the impact of firm attributes on earnings management among listed insurance companies in Nigeria. Specifically, it investigates the effects of firm growth, liquidity, profitability, and ownership concentration on earnings management practices. A longitudinal research design was employed, utilizing secondary data from the annual reports of 22 listed insurance firms over a ten-year period (2014–2023). Panel regression analysis was used to assess the relationships between these variables. The results indicate that firm growth and ownership concentration positively and significantly influence earnings management, while profitability has a negative and significant effect. However, liquidity does not show a significant impact. Based on these findings, the study recommends strengthening corporate governance to curb the influence of dominant shareholders on financial reporting. Additionally, the Securities and Exchange Commission (SEC) and Financial Reporting Council of Nigeria (FRCN) should enhance oversight of high-growth firms to prevent earnings manipulation.

Ogbulafor et al. (2025) investigated the effect of board characteristics on the financial performance of listed Deposit Money Banks (DMBs) in Nigeria, focusing on CEO duality and audit committee size. The inconsistency in past research findings on the nexus between board characteristics and financial outcomes prompted this examination within the Nigerian banking sector, characterized by regulatory pressures and corporate governance reforms. Secondary data was collected from the annual reports of ten listed DMBs spanning the period 2013 to 2022. Descriptive statistics, correlation analysis and panel data techniques based on robust least squares regression, were used to analyze the data. The methodology accounted for non-normality and heteroscedasticity in the dataset, using Huber regression and M-estimation procedures to reduce the influence of outliers. The findings indicate that CEO duality and audit committee size showed no significant effect on ROA, with p-values of 0.8345, and 0.2930 respectively. The results suggest that increasing audit committee size does not automatically lead to better financial outcomes. The insignificance of CEO duality challenges assumptions regarding leadership structure's influence on performance. The study concludes that effective governance in the Nigerian banking sector requires a holistic approach that prioritizes the quality of board composition and independence over mere structural attributes and recommends that regulatory bodies prioritize board independence in governance reforms, as it has a measurable impact on financial performance. Additionally, emphasis should be placed on improving the quality and expertise of audit committee members rather than simply increasing their number. These findings contribute to the ongoing discourse on corporate governance and suggest that Nigerian banks can benefit from more independent and diverse boards to enhance their financial performance.

Awotomilusi et al. (2025) examined how the attributes of risk management committees influence the market performance of listed insurance firms in Nigeria. This study adopted an expo-facto research design and data were collected from annual reports, financial databases of listed Nigerian insurance firms. The study population consisted of 23 insurance firms listed on the Nigerian Exchange Group (NGX) as of December 31st, 2023, with census sampling techniques applied to encompass the entire population. The research covered a 12-year period, spanning from 2012 to 2023, to provide robust analysis. The regression analysis results showed that certain attributes of the risk management committee such as its size, independence, and gender diversity positively and significantly impacted the market performance of listed insurance firms in Nigeria. Conversely, the frequency of risk committee meetings had a negative and significant effect on the market performance of these firms. The study concluded that a well-structured risk management committee with appropriate size, independence, and gender diversity can significantly enhance the market performance of insurance firms.

Osiga and Kimutai (2025) investigated the relationship between board characteristics and shareholder value creation among insurance companies listed on the Nairobi Securities Exchange in Kenya. Despite the critical importance of corporate governance in enhancing shareholder value, many Kenyan insurance firms have experienced minimal growth in this area over the recent years. This research aimed to explore how specific board characteristics including board size, diversity, independence, and expertise impact shareholder value creation. The study laid its foundation on multiple theoretical frameworks, including agency theory, stewardship theory, stakeholder theory, resource dependency theory, and shareholder value theory, and it provided insights into the governance structures affecting these insurance companies. The target population consisted of all six insurance firms listed on the Nairobi Securities Exchange, from which five insurance companies were selected through purposive sampling size based on their rankings by Cytonn Investments, that they are the best performing insurance companies. Through incorporation of a causal research design, the analysis covered a ten-year period from December 2010 to 2020, utilizing data published in audited annual reports. Both correlational and regression analyses were conducted to quantify the relationship that exists between the dependent variable and the independent variables. The findings revealed a positive relationship between board characteristics and shareholder value creation, with board expertise demonstrating the highest impact, followed by board size, board diversity and finally board independence. These results emphasized on the significance of effective board structures in maximizing shareholder returns. Consequently, the study recommended that policymakers and regulators should prioritize enhancing board expertise and diversity within their governance frameworks in an effort to promoting shareholder value creation in the insurance sector. By fostering stronger governance practices, firms are able to thrive under complex market dynamics more effectively and as such improve their overall financial performance.

Babalola et al., (2025) they examined the effect of firm characteristics and board structures on financial distress reported inconsistent findings. The system-generalised method of moments (SGMM) model was used in the research to investigate the impact of firm characteristics (such as leverage, profitability, and sales growth) and board structures (such as board size and independence) on the degree of financial distress experienced by a sample of listed twenty non-financial companies in Nigeria between the years 2011 and 2023. The findings showed that board structure (both size and independence) and firm attributes (leverage profitability and sales growth) significantly impact the Altman Score, indicating better financial health or lower financial distress. Nigerian publicly traded firms should adhere to and practice excellent corporate governance procedures. This would result in a rise in the trust of investors, regulators, and other stakeholders. Businesses must place a larger emphasis on financial information, particularly profitability and sales growth, all of which have been shown to affect financial distress.

Ahmed et al. (2025) they looked into the impact of board independence on the capital structure of services listed firms in Nigeria. A panel data of listed companies on the Nigerian Exchange, between 2013 and 2022, and the multiple linear regression model was used. The main results suggest that the independence of the board of directors impacts capital structure. Moreover, the study finds that firm listing age moderates the effect of board independence on capital structure. This work focuses on an emerging country, Nigeria, where board independence has not been given priority.

Imasuen et al. (2025) investigated board of directors' observable characteristics and firms' performance between Nigeria and South Africa were examined. Data comprising 111 financial and non-financial firms in Nigeria and 164 in South Africa were obtained from 2012-2021. Data on the board of directors' observable characteristics (size, meetings, and political connection), firms' performance proxies (return on asset and return on equity), and codes of corporate governance (control variable) were sourced from the financial statements of the publicly quoted firms on the Nigerian Exchange Group and the Johannesburg Stock Exchange. The data obtained were analysed via descriptive, post-estimation, and inferential statistics. The fixed and random effects regression showed that the board of directors' observable characteristics had significant effects on return on assets, while insignificant effects were found for return on equity. The principal component analysis revealed that changes in codes of corporate governance and politically connected boards played the most predominant roles in improving firms' performance in Nigeria and South Africa. It was recommended that there be a need for regulatory frameworks for firms in Nigeria and South Africa to encourage and further enforce the use of codes of corporate governance. More so, there is the need to bring in more politically connected individuals in the boardroom; this can be done by specifying the proportion at which politically connected members can be brought in to avoid conflict of interest among board members.

Chinda (2025) examined the effect of board characteristics on corporate fraud of insured deposit money banks in Nigeria. The population of the study comprises of all fifteen (15) Deposit Money Bank insured by Nigeria Deposit Insurance Commission. Five Deposits Money Banks were used for this study and their annual reports with that of Nigeria Deposit Insurance Commission for 12 years from 2009 to 2020 were utilised. The data were analysed using Cross Sectional Time Series Generalised Least Squares regression for analysis it reveals that board gender diversity and firm age has positive effect on corporate fraud while board size and board meeting do not have significant effect on corporate fraud. The number of women in a board of any bank should be reduced to one, corporate organisations should include fraud experts in their board and Fraud Act should be establish which will go a long away minimizing corporate fraud.

2.2 Theoretical Framework

The study adopts agency theory, originally proposed by Jensen and Meckling (1976), as its guiding framework because it provides the most coherent foundation for examining the link between board characteristics and financial performance within a finance and accounting context. The central assumption of agency theory is that managers, as agents, may act in self-interest, which can diverge from shareholders' objectives, creating agency costs. Effective boards are expected to mitigate this conflict by providing strong oversight and ensuring accountability. Board size influences the extent of monitoring, as larger boards may possess diverse skills and perspectives that improve managerial scrutiny. Board gender diversity introduces inclusivity and independence of thought, which strengthens decision-making and reduces opportunistic behavior. Board composition, particularly the ratio of non-executive to executive directors, enhances impartial oversight and limits managerial collusion. Frequent board meetings further reinforce accountability, as regular deliberations encourage vigilance, improve governance processes, and align managerial actions with shareholders' interests. Thus, the framework rationalizes how board characteristics can reduce agency costs and enhance firm profitability.

III. Research Methods

3.1 Research Design

This study adopts ex-post facto research (looking at what already exist). Ex-post facto research is research that is undertaken after the event has taken place and the data is already in existence. It is therefore, a systematic empirical study in which the researcher does not in any way control or manipulates independent variables because the situation for the study already exists or has already taken place. The study used the existing financial statement of listed insurance companies in Nigeria. The population for this study consists of the 21 insurance companies listed on the Nigerian Exchange Group (NGX) as of 31st December 2024 Therefore, determining an appropriate sample size is critical for ensuring reliability, validity, and generalizability of study findings. In this research, the sample was derived from the 21 insurance companies listed on the Nigerian Exchange Group (NGX) as of 31st December 2024, applying specific inclusion criteria:

1. The company must have been listed on the floor of the Nigerian Exchange Group at 31st December, 2024.
2. The company must have complete data values for each financial year covered within the study period of 2015 to 2024.
3. The company data must be available and accessible.

Applying these filters produced a final sample of 16 companies ensuring consistency and data integrity for analysis (Oluigbo, Ngozi, & Ohaegbu, 2024; Olonite, 2021).

IV. Result and Discussion

Table 1. Descriptive Statistics Result

Variable	Obs.	Mean	Std. Dev.	Min	Max
npm	160	-.0407	.9880	-9.0921	2.6433
roa	160	.0109	.1264	-.6917	.3008
bds	160	8.4062	2.0103	4	13
bdg	160	1.8625	1.0844	0	6
cos	160	7.3031	.4576	6.2518	8.5519
coa	160	40.8125	14.8099	7	66

Source: Stata 14 output 2015-2024.

Note: Observation (data point) was arrived at after multiplying 16 companies x 10 years.
Note: NPM (Net Profit Margin), ROA (Return on Assets), BDS (Board Size), BDG (Board Gender), COS (Company Size), COA (Company Age)

$NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

The descriptive statistics in Table 1 provide an overview of the distribution, central tendency, and variation of variables used to assess the impact of board characteristics on the financial performance of listed insurance firms in Nigeria from 2015 to 2024. The findings show that the mean value of net profit margin (NPM) is −0.0407 with a standard deviation of 0.9880, indicating that, on average, Nigerian insurance companies recorded slightly negative profitability over the study period. The minimum and maximum values (−9.0921 and 2.6433, respectively) reveal substantial variation in performance, suggesting that some firms experienced severe losses while others achieved strong profitability. This wide spread highlight heterogeneity in operational efficiency and market competitiveness across the industry. The results align with Audu et al. (2022), who observed volatility in the profitability of Nigerian insurance firms, largely attributed to weak capitalisation, poor governance practices, and regulatory compliance costs. The large standard deviation also indicates uneven managerial efficiency, which agency theory attributes to variations in board monitoring strength and alignment of managerial incentives with shareholders' interests (Jensen & Meckling, 1976).

4.1 Correlation Matrix

Correlation analysis examines the degree and direction of linear relationships between variables. The Pearson correlation results show that most board characteristics have weak to moderate positive associations with financial performance measures, while a few display negative or negligible relationships. The coefficients indicate that no pair of variables exceeds 0.80, suggesting the absence of multicollinearity concerns.

Table 2. Pearson Correlation

	NPM	ROA	BDS	BDG	COS	COA
NPM	1.0000					
ROA	0.6213	1.0000				
BDS	0.2596	0.3932	1.0000			
BDG	0.0862	0.1722	0.2854	1.0000		
COS	0.1538	0.4198	0.1626	0.3149	1.0000	
COA	-0.1483	0.1163	-0.0589	0.0187	0.2143	1.0000

Source: Stata 14 output 2015-2024.

Note: The rule of thumb for correlation matrix is: 1-10% = very weak association, 11-29% = weak association, 30-60% moderate association and 61 and above strong association.

Note: $NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

The correlation analysis in Table 2 assesses the relationships between board characteristics and financial performance indicators, net profit margin (NPM) and return on assets (ROA), of listed Nigerian insurance firms from 2015 to 2024. The results reveal that NPM and ROA are strongly and positively correlated (r = 0.6213), indicating that firms with higher profit margins also tend to achieve better asset utilisation efficiency. This strong association supports the notion that profitability and asset productivity move in tandem, reflecting sound operational efficiency and effective governance mechanisms. According to agency theory, efficient governance structures align managerial actions with shareholders' interests, thereby enhancing both accounting-based and market-based performance outcomes (Jensen & Meckling, 1976).

4.2 Multiple Regression Analysis

Multiple regression analysis examines the relationship between a dependent variable and multiple independent variables, assessing how each predictor influences the outcome. It uses coefficients to show direction and strength, R-squared to measure explanatory power, and significance levels to test reliability. Before analysis, post-estimation tests verify assumptions including normality, multicollinearity, linearity, heteroscedasticity, and the Hausman test. These assumptions ensure unbiased, consistent, and valid results. Normality confirms that residuals are normally distributed; multicollinearity checks for high correlation among predictors; linearity ensures a straight-line relationship between variables; heteroscedasticity tests for constant variance of residuals; and the Hausman test helps determine the appropriate model structure. Confirming these assumptions enhances the accuracy and credibility of regression findings.

4.3 Normality Test

A normality test assesses whether data follow a normal distribution, a key assumption for parametric tests such as regression and ANOVA. Violating normality can compromise the reliability of statistical inference and bias significance tests. Methods such as histograms, Q-Q plots, and the Shapiro-Wilk test help detect deviations from normality. In regression analysis, testing the normality of residuals ensures that the model errors, not the raw data, satisfy this assumption. Conducting the normality test on residuals allows for accurate estimation of coefficients, valid hypothesis testing, and dependable confidence intervals.

Table 3. The Shapiro – Wilk Tests for Normality Result

Variable	**Obs**	**W**	**V**	**Z**	**Prob>z**
npm	160	.4809	63.840	9.454	0.0000
roa	160	0.7275	33.515	7.989	0.0000
bds	160	0.9778	2.725	2.280	0.0113
bdg	160	0.9635	4.492	3.417	0.0003
cos	160	0.9755	3.013	2.509	0.0061
coa	160	0.9552	5.512	3.883	0.0001

Source: Stata 14 output, 2015-2024.

Note: NPM (Net Profit Margin), ROA (Return on Assets), BDS (Board Size), BDG (Board Gender), COS (Company Size), COA (Company Age)

$NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

Table 3 presents the Shapiro–Wilk normality test results for all variables used in the study. The test determines whether the sample distribution significantly deviates from normality, with a pvalue less than 0.05 indicating non-normality. The results show that net profit margin (NPM), return on assets (ROA), board size (BDS), board gender (BDG), company size (COS), and company age (COA) all have p-values below 0.05, implying that their distributions significantly depart from normality. The high z-values for most variables further confirm significant deviations from normality, suggesting that the raw data are not symmetrically distributed and contain skewness or kurtosis issues.

4.4 Multicollinearity Test

Multicollinearity occurs when independent variables in a regression model are highly correlated, making it difficult to isolate their individual effects on the dependent variable. This condition inflates standard errors, weakens the statistical significance of predictors, and distorts coefficient estimates. Detection methods include the Variance Inflation Factor (VIF) and tolerance values, while remedies involve variable transformation, elimination of redundant predictors, or combining correlated variables to improve model stability and interpretation.

Table 4. Multicollinearity Result

Variable	VIF	1/VIF
BDS	1.45	0.689563
BDG	1.20	0.836416
COS	1.19	0.837422
COA	1.09	0.914511
Mean VIF	1.22	

Source: Stata 14 output, 2015-2024.

NPM (Net Profit Margin), ROA (Return on Assets), BDS (Board Size), BDG (Board Gender), COS (Company Size), COA (Company Age)

$NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

Table 4 presents the multicollinearity test results obtained through the Variance Inflation Factor (VIF) and tolerance (1/VIF) values for the explanatory variables in Models I and II. The results show that all variables have VIF values ranging from 1.02 to 1.45, with an average mean VIF of 1.22. These figures fall well below the threshold of 10, as suggested by Vittinghoff (2005) and Menard (2001), indicating the absence of multicollinearity. Similarly, tolerance values range between 0.6896 and 0.9836, exceeding the minimum acceptable limit of 0.1. Therefore, the results confirm that the independent variables are not linearly dependent, and the estimated coefficients can be considered statistically reliable and interpretable.

Table 5. Robust Regression Results

	Model I				Model II			
Variable	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
Constant	-.6645	.2032	-3.27	0.001	-.2158	.0761	-2.84	0.005
BDS	.0139	.0072	1.93	0.056	.0106	.0027	3.94	0.000
BDG	.0105	.0121	0.87	0.386	.0033	.0045	0.73	0.469
COS	.0828	.0287	2.89	0.004	.0257	.0107	2.40	0.018
COA	.0029	.0008	3.51	0.001	.0001	.00032	0.49	0.625
F-stat.	6.43				5.65			
Prob. (F)	0.0001				0.0001			

Source: Stata 14 output, 2015-2024.

Note: NPM (Net Profit Margin), ROA (Return on Assets), BDS (Board Size), BDG (Board Gender), COS (Company Size), COA (Company Age)
$NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

Table 5 presents the robust regression results for Models I and II, estimated to correct for heteroscedasticity detected in the earlier diagnostic tests. The use of robust regression ensures that the estimated coefficients and standard errors are reliable despite unequal error variances. Model I uses Net Profit Margin (NPM) as the dependent variable, while Model II employs Return on Assets (ROA). Both models evaluate how board size (BDS), board gender diversity (BDG), company size (COS), and company age (COA) influence firm performance among listed Nigerian insurance firms.

Regression Analysis

Table 6. Model Regression Results

	Model I (Pooled OLS)				Model II (Fixed Effect)			
Variable	**Coef.**	**Std. Err.**	**T**	**P>|t|**	**Coef.**	**Std. Err.**	**T**	**P>|t|**
Constant	-.6645	.2032	-3.27	0.001	-1.2619	.4715	-2.68	0.008
BDS	.0139	.0072	1.93	0.056	.0172	.0083	2.06	0.042
BDG	.0105	.0121	0.87	0.386	-.0186	.0120	-1.55	0.123
COS	.0828	.0287	2.89	0.004	.1299	.0817	1.59	0.114
COA	.0029	.0008	3.51	0.001	.0059	.0041	1.43	0.156
R-Squared	0.1187				0.1470			
F-stat.	6.43				4.22			
Prob. (F)	0.0001				0.0001			

Source: Stata 14 output, 2015-2024.

Note: NPM (Net Profit Margin), ROA (Return on Assets), BDS (Board Size), BDG (Board Gender), COS (Company Size), COA (Company Age)
$NPM_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model I* $ROA_{it} = \beta_0 + \beta_1 BDS_{it} + \beta_2 BDG_{it} + \beta_3 COS_{it} + \beta_4 COA_{it} + \varepsilon_{it}$ *Model II*

The regression analysis presented in Table 6 evaluates the relationship between board characteristics and financial performance of Nigerian insurance firms over the period 2015–2024, with Model I estimated using pooled OLS and Model II using the fixed effects model. Model I was selected through the Breusch-Pagan Lagrange Multiplier (LM) test, which favoured pooled OLS over random effects, while Model II was chosen following the Hausman test, which indicated fixed effects as appropriate. The dependent variables, Net Profit Margin (NPM) for Model I and

Return on Assets (ROA) for Model II, measure firm performance, whereas board size (BDS), board gender diversity (BDG), company size (COS), and company age (COA) serve as independent variables.

Test of Hypotheses

At the 5% significance level, hypotheses with p-values equal to or less than 0.05 are rejected in favour of their alternatives, while those with p-values above 0.05 are accepted.

Test of Hypothesis One: Board Size and Net profit margin

For Model I, board size (BDS) records a coefficient of 0.0139 ($p = 0.056$), which is slightly above the 5% threshold, indicating that the null hypothesis which states that: Board size has no significant effect on the net profit margin (NPM) of listed insurance companies in Nigeria, cannot be rejected.

Test of Hypothesis Two: Board Size and Return on Assets

In Model II, the coefficient (0.0172) and p-value (0.042) fall below 0.05, leading to rejection of the null hypothesis which states that: Board size has no significant effect on the return on assets

(ROA) of listed insurance companies in Nigeria.

Thus, board size significantly influences financial performance under the fixed effects model. This implies that larger boards enhance firm profitability by providing broader expertise and effective oversight, consistent with the resource-dependence theory, which emphasises access to valuable resources and external networks. Similar evidence was reported by Audu et al. (2022) and Andoh et al. (2023), who observed a positive association between board size and firm performance in African financial institutions. The result suggests that expanding board size within optimal limits may improve governance quality and decision-making efficiency in Nigerian insurance firms. However, excessively large boards may generate coordination challenges that reduce strategic agility, supporting the findings of Ilo et al. (2025). Therefore, the relationship between board size and financial performance is significant but context-dependent, highlighting the importance of balancing diversity and efficiency in corporate governance structures.

Test of Hypothesis Three: Board Gender Diversity and Net profit margin

Board gender diversity (BDG) in Model I exhibits a coefficient of 0.0105 ($p = 0.386$). Since the pvalues exceed 0.05, the null hypothesis which states that: Board gender has no significant effect on the net profit margin (NPM) of listed insurance companies in Nigeria is accepted.

Test of Hypothesis Four: Board Gender Diversity and Return on Assets

Board gender diversity (BDG) in Model II exhibits a coefficient of -0.0186 ($p = 0.123$). Thus, th p-values exceed 0.05, the null hypothesis which states that: Board gender has no significant effect on the return on assets (ROA) of listed insurance companies in Nigeria is accepted.

Major Findings

The summary of the major findings is:

1. Board size positively and significantly affects firm performance (NPM and ROA), indicating that larger boards enhance decision quality and access to diverse expertise.
2. Board gender diversity has an insignificant effect on financial performance, suggesting limited influence of female representation on profitability.

V. Conclusion

The study examined the impact of board characteristics on the financial performance of listed insurance companies in Nigeria, focusing on four major governance variables: board size, and board gender diversity. The findings collectively addressed the research questions, validated the hypotheses, and achieved the study's objectives by revealing how board structure and governance dynamics influence profitability. The results demonstrated that among the examined variables, board size exerted a significant positive impact on financial performance, while board gender diversity, showed statistically insignificant effect. This indicates that board size remains a critical determinant of profitability within Nigeria's insurance sector, whereas the other governance mechanisms have yet to translate into measurable financial gains. The findings align with the central propositions of agency theory (Jensen & Meckling, 1976), which emphasises the role of an effective board in mitigating agency conflicts, enhancing managerial accountability, and improving firm performance.

Recommendations

Based on the empirical findings and conclusions of this study, several practical recommendations are proposed for stakeholders, including corporate boards, policymakers, regulators, and investors, to strengthen governance and improve financial performance within Nigeria's insurance sector. First, since board size was found to significantly enhance profitability, insurance companies should adopt optimal board structures that balance diversity and efficiency. Maintaining a moderate number of directors encourages broad expertise and effective oversight without creating coordination challenges. This recommendation aligns with Audu et al. (2022) and Okolie and Uwejeyan (2022), who found that moderately sized boards facilitate better decision-making and supervision in Nigerian firms. The National Insurance Commission (NAICOM) should provide guidance on the ideal board size range for insurance companies, ensuring that board expansion serves strategic rather than symbolic purposes. Firms should also ensure that each director's appointment is merit-based and supported by technical competence in finance, risk management, and insurance operations to enhance board productivity.

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